

MAS3114: Computational Linear Algebra

Fall 2024

Section 14240 (In-Person)

Contact Information:

Course Coordinator / Instructor

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The course homepage is in [e-Learning Canvas](#). The information for office hours can be found on Canvas.

MAS3114: Calendar, Fall 2024

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
				Aug 22	22 Lesson 1
27	26 Lesson 2	27	28 Lesson 3 Drop/Add Deadline	29 MATLAB zoom session @ 11:45am HW 1-2	30 Lesson 4
Sept 1	2 Labor Day No Class	3 MATLAB 0	4 Lesson 5	5 HW 3-4	6 MATLAB Q&A
8	9 Lesson 6	10 MATLAB 1	11 Lesson 7	12 HW 5-6	13 Lesson 8
15	16 Lesson 9	17	18 Lesson 10	19 HW 7-9	20 Review Practice Exam 1
22	23 EXAM 1	24	25 Lesson 11	26 HW 10	27 MATLAB Q&A
29	30 Lesson 12	Oct 1 MATLAB 2	2 Lesson 13	3 HW 11-12	4 Lesson 14
6	7 Lesson 15	8	9 Lesson 16	10 HW 13-15	11 Lesson 17
13	14 Lesson 18	15	16 MATLAB Q&A	17 HW 16-18	18 UF Homecoming No Class
20 MATLAB 3	21 Review Practice Exam 2	22	23 EXAM 2	24	25 Lesson 19
27	28 Lesson 20	29	30 Lesson 21	31 HW 19-20	Nov 1 Lesson 22
3	4 Lesson 23	5	6 Lesson 24	7 HW 21-23	8 MATLAB Q&A
10 MATLAB 4	11 Veterans Day No Class	12	13 Lesson 25	14 HW 24	15 Lesson 26
17	18 Lesson 27	19 HW 25-27	20 Review Practice Exam 3	21	22 EXAM 3 Withdraw Deadline
24 MATLAB EC	25 Thanksgiving No Class	26 Thanksgiving	27 Thanksgiving No Class	28 Thanksgiving	29 Thanksgiving No Class
Dec 1	2 Review	3	4 MAKEUP EXAM (optional)	5 Reading Day	6 Reading Day

- HW assignments (LQ and MyLab) are due at 11:59PM EDT/EST on the date indicated in the calendar.
- Each exam is given in class during the class period.

1. INTRODUCTION

1a COURSE CONTENT: MAS3114 is a 3-credit course on linear algebra whose topics are of computational nature. The topics include linear equations, linear transformations, matrices, determinants, vector spaces, eigenvalues, and inner products. This course emphasizes computational aspects of Linear Algebra. MAS3114 is designed to serve science, computer science, quantitative science, engineering majors, and mathematics minors. Mathematics majors are required to take MAS4105, Linear Algebra 1.

Learning Objectives/Outcomes: Upon successful completion of the course, students will:

- Solve linear systems of equations explicitly and numerically.
- Demonstrate understanding of linear transformations and their importance to applied science.
- Perform basic matrix calculations and compute determinants of matrices.
- Explain basic linear algebra concepts including vector space, subspace, span, linear independence, basis, and dimension.
- Diagonalize a matrix when applicable.
- Demonstrate understanding of inner products and orthogonality.
- Determine least-squares solution of linear system.

1b PREREQUISITES: MAC2312 with a minimum grade of C and experience with a scientific programming language.

1c REREQUIRED MATERIALS:

Textbook: **Linear Algebra and Its Applications**, 6th edition, by David C. Lay

An access code to **MyLab and Mastering** is required for the course. It can be obtained through [UF All Access program](#) by authorizing charges to your student financial account and is provided at a reduced price. This option will become available starting one week prior to the beginning of the semester and ends three weeks after the first day of class. If a student does not wish to authorize charges to his student financial account, he may purchase an access code at the [UF bookstore](#) instead, which will be more expensive than opting-in.

See the **Orientation Module** on Canvas for details on obtaining an access code through UF All Access and registration with MyLab and Mastering.

1d E-LEARNING CANVAS: All course-related information is posted on Canvas. Students are required to complete the **Orientation Module** and **Course Orientation Quiz** to unlock the remaining Canvas pages and start Unit 1.

Turn on Notifications in your Canvas account so that you can receive timely alerts in your UF email. See the [instructions](#) for Canvas Notification settings.

Check Canvas Announcements. Due to the volume of email instructors receive, we cannot reply to each request for the information that is already posted online.

1e LECTURES meet MWF5 in TUR L007. Attendance is highly recommended. Students are responsible for learning lecture material missed due to absences.

The course material is divided into three units:

- Unit 1: Lessons 1 – 9 Linear Systems & Matrices
- Unit 2: Lessons 10 – 18 Determinants & Vector Spaces
- Unit 3: Lessons 19 – 27 Eigenvectors & Orthogonal Sets

Students can print out the lecture outlines posted on each unit page in Canvas, or purchase a course pack from Target Copy Center.

2. ASSESSMENTS

2a LEARNING QUIZZES: There are 27 sets of learning quizzes (LQs) given on the lesson material, and there are three attempts for each LQ. Students are expected to work individually on these assignments. The two lowest LQ grades will be dropped at the end of the semester.

2b MYLAB HOMEWORK: Each online MyLab assignment is a set of problems assigned on MyLab and numbered according to the lesson covered. MyLab assignments provide necessary practice for mastering the material delivered in lecture. Students have five attempts for most questions (except for multiple-choice or true-false questions) in MyLab assignments before the due date. There will be a total of 27 sets of assignments assigned and the two lowest scores will be dropped at the end of the semester.

NOTE: The due date for HW assignment (including LQ and MyLab) for each lesson is shown in the course calendar.

2c MATLAB ASSIGNMENTS: Four MATLAB assignments will be assigned during the semester, and each assignment must be completed using MATLAB software and submitted on Gradescope by its due date. For more information on the assignments, visit the **MATLAB** page on Canvas and read the instructions for each assignment.

2d EXAMS: There will be three unit exams during the semester. All exams will be given in the lecture hall during the regular class time on the date indicated in the calendar. The exam duration is 50 minutes.

The **cumulative** make-up exam (optional) can be taken on the last day of classes. If a student is satisfied with his grade, then he is not required to take the optional make-up exam. If a student takes all three unit exams and optional make-up exam, then the lowest exam grade will be dropped at the end of the semester.

NOTE: Calculators may be useful for some homework problems but are not required for the course. Calculators are not allowed on the exams.

2e MAKE-UP POLICIES: We do not consider traveling as a valid excuse for makeup. Students must provide documentation for makeup and all makeup work must be approved by Dr. Huang.

- **Make-up Exams:** If a student is missing an exam due to a **legitimate reason** (being sick, being away on the UF business, family emergency, or religious holidays), he may provide documentations and request to take an early makeup. **To be eligible for an early makeup**, he must send a request to Dr. Huang prior to the exam, and an early makeup will be scheduled in the following week if the request is approved. A late request will not be accepted, but students may take the optional makeup exam at the end of the semester.

UF Exam Policies: No student is required to take more than three exams in one day. Do not ask for a make-up exam when you have three or less exams on the same day.

- **LQs, MyLab and MATLAB Assignments:** There is no makeup. If a student has documented illness or other extenuating circumstances, he must contact Dr. Huang prior to the deadline and request an extension.

Late submissions: Due Date is not the **Do Date**! DO NOT wait to start the assignments on the day that they are due. Note that LQs, MyLab and MATLAB assignments can be submitted late with a 1-point penalty for each hour beyond the due date.

Warning: Students need to consider carefully and use your judgement to determine whether it is worth submitting an assignment late. Consider the scenarios below:

Scenario 1: Student A scores 90% on a MyLab assignment before the deadline. If he submits the final question (10 points) after 24 hours, his grade will decrease to 76 points in the Canvas gradebook (90 --> 76).

Scenario 2: Student B scores 50% on a MyLab assignment before the deadline. If he submits the remaining question (50 points) after 24 hours, his grade will increase to 76 points in the Canvas gradebook (50 --> 76).

Assignments Review: Students can always review their assignments after submission. After the deadline, students should only click “review” when reviewing the assignments and the grade is subject to the late penalty when clicking “submit”.

- **Extra Credit Assignments**– Course Orientation Quiz, Clicker Points, and Practice Exams: no makeup or extension on any extra credit assignments

If a student has issues with technical difficulties for Canvas, contact the **UF Help Desk** or call 352-392-HELP(4357). Any requests for makeup due to technical issues **MUST** be accompanied by the ticket number received from the Help Desk when the problem is reported to them. The ticket number will document the time and date of the problem. Students **MUST** e-mail Dr. Huang before the due date to discuss makeup.

3. GRADING

3a COURSE GRADE: The course grade is assigned based on the students' performance on the following weighted categories:

27 Lecture Quizzes (drop the two lowest grades)	7.00 %
27 MyLab assignments (drop the two lowest grades)	28.00 %
4 MATLAB assignments	15.00 %
3 Unit Exams	50.00 %
	100.00 %

The final letter grade will be given using the following grading scale:

A	90.00 - 100 %	C	68.00 - 72.49 %
A-	86.50 - 89.99 %	C-*	64.50 - 67.99 %
B+	83.00 - 86.49 %	D+	61.00 - 64.49 %
B	79.50 - 82.99 %	D	57.50 - 60.99 %
B-	76.00 - 79.49 %	D-	54.00 - 57.49 %
C+	72.50 - 75.99 %	E	0 - 53.99 %

There is a built-in curve in the grading scheme and there will be no additional curve or rounding considered at the end of the semester. Extra assignments for individual students to improve their grades are NOT possible.

Extra Credit: The calculation is not correct in Canvas when there are still missing grades during the semester, and it will be accurate at the end of the semester when all grades are posted.

3b ONE WEEK POLICY: All grades are posted in the Canvas gradebook. Students are responsible for verifying that those grades are accurate. Students have one week after a score has been posted to contact the instructor if there is a grading or recording issue. Any grade concerns must be communicated through Canvas Mails for security and privacy reasons. We will not consider any grading disputes nor make any grades adjustment at the end of the semester.

3c INCOMPLETE: A student who has completed a major portion of the course with a passing grade but is unable to complete the last exam or other course requirements due to illness or emergency may be granted an incomplete, indicated by a grade of "I". This allows the student to complete the course within the first six weeks of the following semester. The student must contact the course coordinator to sign the [incomplete grade contract](#), and must provide documentation of the extenuating circumstances preventing him or her from taking the final exam. The grade of "I" is never used to avoid an undesirable grade and does not allow a student to redo work already graded or to retake the course. See the [official incomplete grade policy](#) for details.

4. MISCELLANEOUS

4a ACADEMIC HONESTY: University of Florida students are bound by the Honor Pledge. On all work submitted for credit by a student, the following pledge is required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Student Honor Code and Conduct Code (Regulation 4.040) specifies a number of behaviors that are in violation of this code, as well as the process for reported allegations and sanctions that may be implemented. All potential violations of the code will be reported to Student Conduct and Conflict Resolution. If a student is found responsible for an Honor Code violation in this course, the instructor will enter a Grade Adjustment sanction which may be up to or including failure of the course.

4b STUDENTS WITH LEARNING DISABILITIES: Students requesting class and exam accommodations must register with the [Disability Resource Center \(DRC\)](#) by providing appropriate documentation. A letter of accommodation must be sent to Dr. Huang at least three business days before a scheduled exam to receive exam accommodation. Students with disabilities should follow the DRC procedure as early as possible in the semester since the accommodations are not retroactive.

4c UF CAMUPUS RESOURCES:

- E-learning technical support: Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at helpdesk@ufl.edu.
- [U Matter, We Care](#) provides students in distress with support and coordination of the wide variety of appropriate resources. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. Remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.
- [UF Counseling Center](#) provides information and helps students who are experiencing test-related stress and anxiety or have any other concerns.

4d ONLINE COURSE EVALUATION: Students are encouraged to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via [GatorEvals](#). Students will be notified when the evaluation period opens. Summaries of course evaluation results are available to students at <https://gatorevals.a.a.ufl.edu/public-results/>.